□□□□□□□2020—2021□□□□□□□□□□

□□□□□□□□

□□□□□ CBCCB　ADCBD　CD

□□□□□13. $x+y-4=0$　14.2560　15.　　16. $\left[-4,\frac{7}{2}\right)$

□□□□□

17□□□∀x∈□$2x>m(x^2$□$1)$□□ $m<$□□□□□□□

□ x□□□$_{\max}$□□∵$_{\min}$□□

∴□ p □□ $m<$.

□ t□2^x□□ $t\in(0$□□$\infty)$□□□□ $f(x)$□□ $g(t)$□t^2□$2t$□m□1□

□□□□ $g(t)$□$(0$□□$\infty)$□□□□□□□ $g(t)$□0□□ m□□$(t$□$1)^2$□2□

□ $t>0$□□□□ q □□ $m<1$.

□“$p\vee q$”□□□“$p\wedge q$”□□□∵p□q □□□□□

□□□□≤$m<1$.□□□□□ m □□□□□□.

18□ □□□1□□□□□□$(a_2-1)^2=(a_1-1)(a_4-1)$□□$(a_1+1)^2=(a_1-1)(a_1+5)$□

□□ $a_1=3$□□ $a_n=2n+1$□$n\in N^*$□

□2□□ $b_n=\frac{1}{(2n+1)(2n+3)}=\frac{1}{2}(\frac{1}{2n+1}-\frac{1}{2n+3})$□□ $S_n=a_1+a_2+a_3+\ldots+a_n$□

$$=\frac{1}{2}(\frac{1}{3}-\frac{1}{5}+\frac{1}{5}-\frac{1}{7}+\ldots+\frac{1}{2n+1}-\frac{1}{2n+3})=\frac{1}{2}(\frac{1}{3}-\frac{1}{2n+3})=\frac{n}{3(2n+3)}$$□

□ $\frac{n}{3(2n+3)}<\frac{1}{7}$□□□ $n<9$□□□□ n□□□□□8.

19.□□ $\sqrt{7}(a\cos B+b\cos A)=ac$,□□□□□□□□

$\sin A\cos B+\sin B\cos A=\frac{\sqrt{7}}{7}a\sin C,$

$\therefore\sin C=\frac{\sqrt{7}}{7}a\sin C,$ □□□ $\sin C\neq 0,\therefore a=\sqrt{7}$,

$\sin 2A=\sin A,\therefore 2\sin A\cos A=\sin A,$

□□ $\sin A\neq 0$, □□ $\cos A=\frac{1}{2}$,

$\because A\in(0,\pi)$, $\therefore A=\frac{\pi}{3}$.

□2□□□1□□, $a=\sqrt{7}, A=\frac{\pi}{3}$.

□□□□□□ $a^2=b^2+c^2-2bc\cos A$,

$\therefore 7=b^2+c^2-bc$, $\therefore 7=(b-c)^2+bc$,

□□ $b-c=2$, □□ $7=4+bc$, □□ $bc=3$.

□ *BC* □□□□□ h.

$\therefore S_{\triangle ABC}=\frac{1}{2}bc\sin A=\frac{1}{2}\times 3\times\frac{\sqrt{3}}{2}=\frac{3\sqrt{3}}{4}$.

□ $S_{\triangle ABC}=\frac{1}{2}ah$, $\therefore \frac{1}{2}\times\sqrt{7}h=\frac{3\sqrt{3}}{4}$, $\therefore h=\frac{3\sqrt{21}}{14}$. □ *BC* □□□□□ $\frac{3\sqrt{21}}{14}$.

21□□□1□□□□ $\{a_n\}$ □□□□ $d(d\neq 0)$ □

□ a_1 □ a_2 □ a_5 □□□□□□ $(1+d)^2=1\times(1+4d)$ □

□□ $d=0$ □□□□□ $d=2$ □□ $a_n=2n-1$ □

□ $b_1=2$ □ $S_{n+1}=\frac{2}{3}S_n+1$ □

□ $n=1$ □□ $b_1+b_2=\frac{2}{3}b_1+1$ □□□ $b_2=\frac{1}{3}$ □

□ $n\geq 2$ □□ $S_n=\frac{2}{3}S_{n-1}+1$ □□ $S_{n+1}-S_n=\frac{2}{3}(S_n-S_{n-1})$ □

□$b_{n+1}=\frac{2}{3}b_n\ (n\geq 2)$□$b_2\neq\frac{2}{3}b_1$□

□$b_n=\begin{cases}2, n=1\\ \frac{1}{3}\left(\frac{2}{3}\right)^{n-2}, n\geq 2\end{cases}$□

□2□□□1□□$c_n=\begin{cases}2, n=1\\ \frac{2n-1}{3}\left(\frac{2}{3}\right)^{n-2}, n\geq 2\end{cases}$□

□$T_n=2+\frac{3}{3}\cdot 1+\frac{5}{3}\cdot\frac{2}{3}+\cdots+\frac{2n-3}{3}\cdot\left(\frac{2}{3}\right)^{n-3}+\frac{2n-1}{3}\cdot\left(\frac{2}{3}\right)^{n-2}$□

□□□□$\frac{2}{3}$□□$\frac{2}{3}T_n=\frac{4}{3}+1\cdot\frac{2}{3}+\frac{5}{3}\cdot\left(\frac{2}{3}\right)^2+\cdots+\frac{2n-3}{3}\cdot\left(\frac{2}{3}\right)^{n-2}+\frac{2n-1}{3}\cdot\left(\frac{2}{3}\right)^{n-1}$□

□□□□□□$\frac{1}{3}T_n=3-\frac{4}{3}+\frac{2}{3}\left[\frac{2}{3}+\left(\frac{2}{3}\right)^2+\cdots+\left(\frac{2}{3}\right)^{n-2}\right]-\frac{2n-1}{3}\cdot\left(\frac{2}{3}\right)^{n-1}$□

$\frac{1}{3}T_n=\frac{5}{3}+\frac{\left(\frac{2}{3}\right)^2\left[1-\left(\frac{2}{3}\right)^{n-2}\right]}{1-\frac{2}{3}}-\frac{2n-1}{3}\cdot\left(\frac{2}{3}\right)^{n-1}$□$\frac{1}{3}T_n=3-\frac{2n+5}{3}\cdot\left(\frac{2}{3}\right)^{n-1}$□

□□□$T_n=9-(2n+5)\cdot\left(\frac{2}{3}\right)^{n-1}$□□□$T_n=9-(2n+5)\cdot\left(\frac{2}{3}\right)^{n-1}<9$□□.

21 □□□1□□□□□AOB□□□□□□□□$\frac{AB}{\sin\angle AOB}=\frac{OB}{\sin\angle BAO}$□

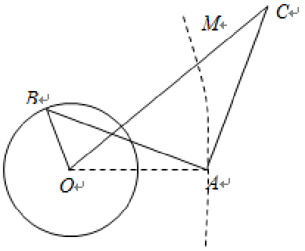
□$\frac{AB}{\sin\alpha}=\frac{OB}{\sin\beta}$□□$OA=2$□$OB=1$□□□$AB=\frac{\sin\alpha}{\sin\beta}$□

□□□□□□□□□□□□$AB^2=OA^2+OB^2-2OA\cdot OB\cos\alpha=4+1-2\times 2\times 1\cos\alpha=5-4\cos\alpha$□

□□ $AB=\sqrt{5-4\cos\alpha}$ □□□ $\frac{\sqrt{5-4\cos\alpha}}{\sin\alpha}=\frac{1}{\sin\beta}$ □□□ $\sin\beta=\frac{\sin\alpha}{\sqrt{5-4\cos\alpha}}$ □

□2□∵ $AB=AC$ □∴ $OC^2=OA^2+AC^2-2OA\cdot AC\cdot\cos(90^\circ+\beta)$

$=4+5-4\cos\alpha+2\times2\times\sqrt{5-4\cos\alpha}\cdot\sin\beta$



$=9-4\cos\alpha+4\sin\alpha$ $=9+4\sqrt{2}\sin(\alpha-\frac{\pi}{4})\leq 9+4\sqrt{2}$

□□ $\alpha=\frac{3\pi}{4}$ □□ OC □□□□□ $2\sqrt{2}+1$ □

22.□□□I□□□□□□□□□□□□ $|AF_1|+|AF_2|=2a$ □ $|BF_1|+|BF_2|=2a$ □

∴△ AF_1B □□□□ $|AF_1|+|BF_1|+|AB|=|AF_1|+|BF_1|+|AF_2|+|BF_2|=4a$ □

∴ $4a=4\sqrt{3}$ □ $a=\sqrt{3}$ □

∴□□ E □□□□ $\frac{x^2}{3}+\frac{y^2}{b^2}=1$ □□ $P\left(1,\frac{2\sqrt{3}}{3}\right)$ □□□ $b^2=2$ □

□□□□□□□□ $\frac{x^2}{3}+\frac{y^2}{2}=1$ □

□II□□□I□□□ $4c^2=a^2-b^2=1$ □□ $F_2(1,0)$ □□□□□□□□ l □□□□□ 0□□□□□□ l □□□□ $x=my+1$ □□

$\begin{cases}\frac{x^2}{3}+\frac{y^2}{2}=1\\ x=my+1\end{cases}$ □□ x □□□□ $(2m^2+3)y^2+4my-4=0$ □

□ $A(x_1,y_1)$ □ $B(x_2,y_2)$ □□ $y_1+y_2=\frac{-4m}{2m^2+3}$ □ $y_1y_2=\frac{-4}{2m^2+3}$ □

□□□$y_1>0$□$y_2<0$□

$$|AF_2|=\sqrt{(x_1-1)^2+y_1^2}=\sqrt{(my_1+1-1)^2+y_1^2}=\sqrt{m^2+1}\cdot|y_1|=\sqrt{m^2+1}\cdot y_1$$□

□□$|BF_2|=\sqrt{m^2+1}\cdot|y_2|=-\sqrt{m^2+1}\cdot y_2$□

□□$\dfrac{1}{|AF_2|}+\dfrac{1}{|BF_2|}=\dfrac{1}{\sqrt{m^2+1}\cdot y_1}+\dfrac{1}{-\sqrt{m^2+1}\cdot y_2}=\dfrac{1}{\sqrt{m^2+1}}\left(\dfrac{1}{y_1}-\dfrac{1}{y_2}\right)$

$$=\frac{1}{\sqrt{m^2+1}}\frac{y_2-y_1}{y_1y_2}=\frac{1}{\sqrt{m^2+1}}\frac{-|y_2-y_1|}{y_1y_2}=\frac{1}{\sqrt{m^2+1}}\cdot\frac{-\frac{\sqrt{16m^2+16(2m^2+3)}}{2m^2+3}}{\frac{-4}{2m^2+3}}$$

$$=\frac{1}{\sqrt{m^2+1}}\cdot\frac{4\sqrt{3(m^2+1)}}{4}=\sqrt{3}$$

□$|AF_2|+|BF_2|=\sqrt{3}|AF_2|\cdot|BF_2|$□□□□□□□$\lambda=\sqrt{3}$□□□$|AF_2|+|BF_2|=\lambda|AF_2|\cdot|BF_2|$□□